

**FACT SHEET FOR NPDES PERMIT WA-000062-1**

**FACILITY NAME Kimberly Clark Worldwide, Inc.**

**SUMMARY**

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## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

Applicant	Kimberly Clark Worldwide, Inc.			
Address	2600 Federal Avenue; Everett, Washington 98201			
Type of Facility:	Pulp and Paper Mill			
SIC Code	2621			
Outfall	Waterbody	Latitude	Longitude	Water Body ID
001*	Port Gardner Bay	47° 58' 18" N	122° 14' 20" W	WA-PS-0030
003*	Everett Harbor	47° 59' 03" N	122° 13' 08" W	WA-07-0010
008*	Everett Harbor	47° 59' 18" N	122° 13' 06" W	WA-07-0010
100	Port Gardner Bay	47° 59' 14" N	122° 14' 48" W	WA-PS-0030
*Outfalls 001, 003, and 008 will be taken out of service after startup of outfall 100 in 2004				

## **BACKGROUND INFORMATION**

### *DESCRIPTION OF THE FACILITY*

#### **HISTORY**

Ground was initially broken at the site for a pulp mill by Puget Sound Pulp and Timber Company in 1929. In 1931 operations at the site produced 300 tons per day of calcium based sulfite pulp from six digesters. In 1936, Soundview Pulp Company assumed ownership, and six digesters were added in 1937 bringing production to 600 tons per day. Scott Paper acquired the mill in 1951 and built four tissue machines. A fifth machine was added in 1979. Scott Paper merged with Kimberly-Clark Corporation in late 1995 and operates under the name of Kimberly-Clark Worldwide, Inc.

For the first twenty years of operation, all mill effluent was discharged via a single discharge point to the Everett inner harbor, outfall 003. In 1951, a new outfall (001) was constructed in conjunction with the Weyerhaeuser sulfite mill then operating to the south of Soundview Pulp to convey spent sulfite liquor (SSL) from both mills to the deep waters of Port Gardner Bay. In 1964, the mill became the first mill in the Northwest to install primary treatment for removal of total suspended solids. In 1974, the mill constructed a sulfite recovery boiler to recover spent liquor from the majority of the operation and combust it for steam generation replacing fossil fuels. In 1979, secondary treatment was installed to treat high BOD waste from boiler condensates and the bleach plant. A new outfall (008) was constructed for the discharge of secondary effluent in 1979.

The mill converted from calcium to ammonia base prior to the construction of the sulfite recovery boiler in 1974; calcium base was not amenable to chemical recovery and liquor combustion. In 2000, the mill changed from a chlorine gas bleaching sequence to a chlorine dioxide bleaching sequence as required by the EPA Cluster Rule. The mill operates elemental chlorine free (ECF). The mill upgraded its wastewater treatment plant in 2002 when new aeration diffusers and a biological selector were installed. The upgrade made it possible to pump primary effluent to the secondary treatment plant. The company and the City of Everett are combining resources to build a deep water outfall. The expected completion date for the new outfall is 2004.

#### **INDUSTRIAL PROCESS**

The facility is an ammonia based sulfite pulp and paper mill that produces market pulp and tissue paper. The mill produces 507 air dry tons per day (ADT/day) paper grade sulfite pulp. The mill imports a total of 188 tons/day of non-integrated tissue pulp. The mill employs approximately 900 people and operates 24 hours a day through the year with a week of shut down for maintenance. It uses on an average 34 million gallons per day of fresh water and treats the wastewater with primary clarification, secondary biological water treatment, and secondary clarification before discharging the wastewater.

## Discharge Outfall

The mill's wastewater currently discharges through three outfalls, 001, 003, and 008. Pulp screening water, paper making effluent, boiler house ash quenching water, freshwater filter backwash, dewatering pressate and noncontact cooling water receives primary treatment. The primary effluent discharges through outfalls 001 and 003 along with non-contact cooling water. Process wastewater from the pulp mill and paper mill receives secondary treatment before being discharged through outfall 008.

Outfall 001 discharges via a 30 inch diameter line and extends 3000 feet due West into Port Gardner. The outfall discharges at a depth of 340 feet. Outfall 003 discharges wastewater into the East Waterway of Everett Harbor. This header is located along the mill's warehouse dock in 25 feet of water. The third outfall, outfall 008, discharges to East Waterway of Everett Harbor via 36 inch diameter outfall extending 255 feet in a west-northwest direction to a depth of 27 feet. The mill is constructing a replacement outfall in 2003, which has been designated Outfall 100. This outfall will combine the mill's flow from the existing three outfalls and will eventually include treated municipal effluents from the cities of Everett and Marysville. Outfall 100 will convey these effluents to the deep waters of Port Gardner Bay. It will thus eliminate discharges of treated industrial effluents from the shallow Everett inner harbor, and will remove most of Everett's and Marysville's municipal effluent discharges from the Snohomish River. The construction of outfall 100 commenced in the spring of 2003. Outfall 001 will be abandoned in the summer of 2003 since it lies in the path of the new outfall. During the construction period, primary effluent and non-contact cooling water will be discharged out of outfall 003. Upon completion outfall 100 in early 2004, outfalls 003 and 008 will no longer be used except in emergency situations. Outfalls 003 and 008 will remain in place to prevent flooding should the mill experience a power failure.

## *PERMIT STATUS*

An application for permit renewal was submitted to the Department in November of 1995 and accepted by the Department in December 1995. The permit application was updated on September 24, 2002. The previous permit for this facility was issued on May 15, 1991 and remains in effect until replaced by the new permit being proposed. The previous permit placed BOD, TSS, pH, and salmon bioassay effluent limitations on the treated wastewater and had monitoring requirements for AOX, dioxins, and furans.

## SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A Class II inspection was conducted April 22-23, 2003. The Permittee was found to be in compliance at that time. During the term of the previous permit, the Permittee has had a few compliance issues with pH control and TSS based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The pH problems occurred in the early 1990's due to system monitoring/control and maintenance problems. The problem was rectified due to modification and improvement to the pH control monitors and improved maintenance. TSS problems occurred later in the 90's due to malfunction of the clarifier sludge dewatering system. This system was repaired and since that time TSS has not been a problem. In addition, the secondary treatment system that discharges to Outfall 008 has

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experienced two TSS problems in 2002 and 2003 due to a change in the wastewater characteristics following the conversion to ECF bleaching. The treatment system has been upgraded to prevent reoccurrences of this problem.

*WASTEWATER CHARACTERIZATION*

The proposed wastewater discharge is characterized for the following regulated parameters found in detectable concentrations:

PARAMETER	CONCENTRATION [mg/l]		
	OUTFALL 001	OUTFALL 003	OUTFALL 008
BOD	52	33	20
Chemical Oxygen Demand	345	190	673
Total Organic Carbon	4.2	0.6	1.8
TSS	38	50	36
Ammonia	2.0	0.7	5.9
Flow	7.5 mgd	14.5 mgd	12.8 mgd
Temp (winter)	29 deg C	33 deg C	38 deg C
Temp (summer)	32 deg C	36 deg C	39 deg C
Color	70 color units	70 color units	800 color units
pH	Min 4.0 max 9.8	Min 4.9 max 10.3	Min 5.7 max 7.6
Fecal Coliform	>1600 / 100 ml	>1600 MPN/ 100 ml	>1600 MPN/ 100 ml
Oil and Grease	<5.0	-	-
Nitrate	-	-	0.7
Nitrogen, Total Organic	3.1	1.8	6.4
Phosphorus, Total	0.6	0.2	3.2
Sulfate	29.8	23.3	994
Aluminum, Total	0.076	0.053	0.485
Barium, Total	.018	0.012	0.084
Boron	0.016	0.01	0.03
Cobalt, Total	0.0002	0.0001	0.0035
Iron, Total	0.328	0.195	0.700
Magnesium, Total	0.87	0.702	6.55
Molybdenum, Total	0.0011	0.0008	0.0013
Manganese, Total	0.049	0.031	0.633
Titanium, Total	0.0068	-	0.037
Antimony, Total	0.0005	0.0004	0.0006
Arsenic, Total	0.0058	0.0042	0.0056
Cadmium, Total	0.0004	0.0002	0.0014
Chromium, Total	0.0018	0.0011	0.0092
Copper, Total	0.0092	0.0094	0.016
Lead, Total	0.007	0.0046	0.0025
Mercury, Total	0.0000024	0.0000061	-
Nickel, Total	0.0019	0.0013	0.032
Silver, Total	0.00005	-	0.00005
Thallium, Total	-	-	0.00005
Zinc, Total	0.0254	0.015	0.128
Phenols, Total	0.00005	0.00004	0.00002
Chloroform	0.012	0.0081	-
Sulfide	3	5	2

PARAMETER	CONCENTRATION [mg/l]		
	OUTFALL 001	OUTFALL 003	OUTFALL 008
Sulfite	2	-	-
Surfactants	0.1	0.06	0.06

In past years, annual testing for dioxin (2,3,7,8-TCDD) in mill effluents has occasionally shown detectable amounts in outfalls 001 and 003. Ecology has determined that this situation was caused by boiler ash entering the primary effluent from the wood waste boiler fly ash. Particulates in boiler flue gas are collected by a state-of-the-art baghouse; historically the fly ash from the baghouse was sluiced to the primary treatment plant, where some ash could enter the effluent stream. Kimberly-Clark operates a recycle system that captures the fly ash for disposal in a regulated landfill. Operation of this system has reduced 2,3,7,8-TCDD in effluent to non-detect.

## **SEPA COMPLIANCE**

There are no SEPA requirements related to this action.

## **PROPOSED PERMIT LIMITATIONS**

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and/or do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.



## *DESIGN CRITERIA*

The wastewater treatment system is properly designed to meet the proposed permit limitations.

## TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based limitations are set by regulations or developed on a case by case basis. The federal effluent guidelines for best practicable control technically available (BPT) for paper made by the ammonia sulfite pulping process, Title 40, Code of Federal Regulations (CFR) Part 430.50, Subpart E, were published April 15, 1998. The ammonia sulfite papergrade effluent guidelines were published less than ten years ago and are considered to be equivalent to all known, available, and reasonable methods of treatment (AKART) for conventional pollutants.

40 CFR Part 430.52 Subpart E

(Sulfite pulping where vacuum or pressure drums are used to wash pulp)

BPT effluent limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values
	Pounds per 1,000 pound of product	
BOD <sub>5</sub>	29.75	15.5
TSS	43.95	23.65
pH	5.0 to 9.0	

The non-integrated tissue paper grade was published in the federal register on November 18, 1982 and March 30, 1983. The federal effluent guidelines for best conventional pollutants control technology (BCT) was defined on December 17, 1986 to be the same as BPT previously defined in March 1983 for non-integrated wood furnished fiber for tissue paper. Since, the effluent guidelines were defined for non-integrated wood furnished fiber more than ten years ago, it must be determined if these guidelines can be equated to (AKART) for conventional pollutants.

On April 15, 1998, the Environmental Protection Agency promulgated effluent guidelines for the bleached Kraft Paper grade and Soda subcategories and Paper grade Sulfite subcategory (Subparts B and E, respectively). The 1998 allowances in both Subparts for BOD and TSS in pounds per 1000 pounds of pulp produced for the above categories were set at the same values as the allowances in the effluent guidelines published in 1982. The 1998 effluent guidelines took both emissions to air and water into consideration and included chlorinated organic compounds. Secondary treatment was the required type of treatment.

The 1982 and 1998 effluent guidelines for nonintegrated tissue paper production are determined to be AKART for the following reasons.

- There were no changes for conventional pollutants allowances in the new guidelines for the type of paper making promulgated on April 15, 1998
- Secondary treatment has been and is expected to remain the level of treatment that the effluent guidelines are based on.

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- Five other permits have been issued and another one has been drafted with the 1982 effluent guidelines being determined to be equivalent to AKART.

The effluent guidelines for non-integrated tissue paper grade were published in the federal register on November 18, 1982 and March 30, 1983. The federal effluent guidelines for best conventional pollutants control technology (BCT) were defined on December 17, 1986 under Title 40 CFR 430.182 Subpart S to be the same as BPT previously defined in March 1983 for non-integrated wood furnished fiber for tissue paper. Since the effluent guidelines were defined for non-integrated wood furnished fiber more than ten years ago, it must be determined if these guidelines can be equated to (AKART) for conventional pollutants.

On April 15, 1998, the Environmental Protection Agency republished the effluent guidelines for the Tissue, Filter, Non-Woven and Paperboard from Purchased Pulp subcategory, Title 40, Code of Federal regulations (CFR) Part 430.120, Subpart L. The 1998 allowances for BOD and TSS in pounds per 1000 pounds of tissue paper produced from purchased pulp are the same as for the former Subpart S under the earlier effluent guidelines. The 1982 guidelines as republished in 1998 are as follows for nonintegrated tissue paper production and will be used in the proposed permit to calculate the BOD and TSS limit.

40 CFR Part 430.122 Subpart L  
(Tissue from purchased pulp)

BPT effluent limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values
	Pounds per 1,000 pound of product	
BOD <sub>5</sub>	11.4	6.25
TSS	10.25	5.0
pH	5.0 to 9.0	

The above allowances are summarized below in terms of lbs/ADT with the production given in tons/day paper.

ALLOWABLE DISCHARGE BASED ON PRODUCTION

Pulp type		BOD		TSS	
	AMOUNT	Average	Daily maximum	Average	Daily maximum
	[ADT]	[lbs/ADT]	[lbs/ADT]	[lbs/ADT]	[lbs/ADT]
SULFITE	507	31	59.5	47.3	87.9
Non-integrated	188	12.5	22.8	10	20.5

PROPOSED LIMITS

PARAMETER	Limitation [lbs/day]	
	Monthly Ave.	Daily Max.
Biochemical Oxygen Demand (5 day)	18,100 lbs/day	34,500 lbs/day
Total Suspended Solids	25,900 lbs/day	48,400 lbs/day
pH range	5.0 to 9.0	

Determination of AKART for the bleaching process used at the mill

The 1998 effluent guidelines (40 CFR 430.54) defined best available technology economically achievable as elemental chlorine free (ECF). Since the 1998 effluent guidelines were promulgated less than ten years ago, all known and reasonable treatment (AKART) for the bleaching process for Kimberly Clark Worldwide at Everett Washington is defined as ECF.

The 1998 effluent guidelines (40 CFR 430.54) limited the chlorinated phenolic pollutants for the pulp produced at ammonia sulfite mills as follows for Bleach Plant Effluent Compliance:

Compounds	Method	Limit
2,3,7,8-TCDD	1613	< 10 pg/L
2,3,7,8-TCDF	1613	< 10 pg/L
Trichlorosyringol	1653	< 2.5 µg/L
3,4,5-Trichlorocatechol	1653	< 5.0 µg/L
3,4,6-Trichlorocatechol	1653	< 5.0 µg/L
3,4,5-Trichloroguaiacol	1653	< 2.5 µg/L
3,4,6-Trichloroguaiacol	1653	< 2.5 µg/L
4,5,6-Trichloroguaiacol	1653	< 2.5 µg/L
2,4,5-Trichlorophenol	1653	< 2.5 µg/L
2,4,6-Trichlorophenol	1653	< 2.5 µg/L
Tetrachlorocatechol	1653	< 5.0 µg/L
Tetrachloroguaiacol	1653	< 5.0 µg/L
2,3,4,6-Tetrachlorophenol	1653	< 2.5 µg/L
Pentachlorophenol	1653	< 5.0 µg/L

These limitations are placed in the proposed permit. Compliance with these limitations is to be determined at the bleach plant effluent. The Permittee has recently been sampling the bleach plant effluent for dioxins and furans. The results of these tests showed that the mill could not meet the proposed permit limit for TCDF. After an extensive investigation and sampling program, Kimberly Clark determined that a portion of the TCDF was coming into the bleach plant from the fresh water intake. The problem with the fresh water intake and meeting the furan limit imposed by the effluent guidelines was referred to the Environmental Protection Agency in Washington DC. EPA advised that the Permittee could net out the concentration of TCDF found in the fresh water intake consistent with 40 CFR 122.45(g), that is, subtract the incoming TCDF concentration from the effluent TCDF concentration. The Permittee is continuing to

sample the fresh water intake for TCDF. The TCDF concentration is highest during the late spring and up to early fall. The proposed permit allows the Permittee to net out TCDF in the fresh water intake concentration to determine compliance.

A place holder was established in the effluent guidelines for chloroform, AOX, and COD. No limitations for these chemicals are placed in the proposed permit. However, the Permittee will be required to monitor for these parameters. The proposed permit will require monitoring the bleach plant effluent for chloroform and the final effluent for COD and AOX.

The Permittee must prepare an application for permit renewal during the fifth year of the permit term. As part of the application, the Permittee is required to provide data on the chemicals (known as a priority pollutant scan) contained in the effluent. The proposed permit requires the Permittee to perform the test for these chemicals on a yearly basis.

### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

#### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in the receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific

beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

#### ANTIDegradation

The State of Washington's Antidegradation Policy requires that discharges into the receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of the receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of the receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The designated classification criteria are given in Chapter 173-201A WAC. The Department will use these designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

#### MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

#### DESCRIPTION OF THE RECEIVING WATER

Outfalls 003 and 008 discharge to Everett Harbor which are designated Class B marine waters in the vicinity of these outfalls. Outfall 001 discharges to Port Gardner Bay which is designated Class A marine waters in the vicinity of the outfall. Other nearby point sources outfalls include City of Everett and Everett Naval Base storm water discharges. Significant nearby non-point source of pollutants includes Port of Everett's log yard and log rafting activities. Characteristic uses include the following: fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

## SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for these waters are summarized below:

### Outfalls 001 and 100

	Class A	Port Gardner Bay
Fecal Coliforms	14	organisms/100 mL maximum geometric mean
Dissolved Oxygen	8	mg/L minimum
Temperature	16	degrees Celsius maximum or 0.3 degrees centigrade incremental increases above background
pH	7.0 to 8.5	standard units
Turbidity	less than 5 NTU above background if background is 50 NTU or less less than 10 NTU above background if background is more than 50 NTU	
Toxics	No toxics in toxic amounts for numeric criteria for toxics of concern for this discharge	

### Outfalls 003 and 008

	Class B	Inner Everett Harbor
Fecal Coliforms	100	organisms/100 mL maximum geometric mean
Dissolved Oxygen	5	mg/L minimum
Temperature	19	degrees Celsius maximum or incremental increases above background
pH	7.0 to 8.5	standard units
Turbidity	less than 10 NTU above background	
Toxics	No toxics in toxic amounts for numeric criteria for toxics of concern for this discharge	

## CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

If pollutant concentrations in the proposed discharges exceed water quality criteria with technology-based controls which the Department has determined to be AKART a mixing zone is

authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC.

The dilution factors for Outfalls 001, 003, and 008 were calculated with a simplified Umerge model in 1992. A dye study was done in 1974 for outfall 003. The size and dilution factor are given for outfalls 001, 003, and 008. The dimension and dilution factor for the new outfall (100) will be determined under Special condition S13. The dilution factor may be in excess of 1000:1 during the first five years of operation.

Outfall #	Acute mixing zone		Chronic mixing zone	
	Distance from diffuser	Dilution Factor	Distance from diffuser	Dilution Factor
001	62 feet	35:1	620 ft	889:1
003	32.4 ft	10:1	324 ft	19:1
008	32.4 ft	10:1	324 ft	35:1

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water. The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, ammonia, metals, and other toxics were determined as shown below, using the dilution factors at critical conditions described above.

BOD<sub>5</sub>--The discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature--The impacts of the discharges on the temperature of the receiving waters for all outfalls were modeled by simple mixing analysis at the critical condition.

Outfall 001: The receiving water temperature at the critical condition is 16 °C. The highest temperature of the receiving water is 17.93 °C. The highest effluent temperature is 34 °C. The dilution is 889:1. Therefore, by simple mixing, the predicted resultant temperature at the boundary of the chronic mixing zone is 17.95 °C. The incremental temperature increase is 0.02 °C. Since the resultant incremental increase is less than 0.3 °C, the water quality criteria for temperature is met.

Outfall 003: The receiving water temperature at the critical condition is 19 °C. The highest receiving water temperature is 18.5 °C and the highest effluent temperature is 36 °C. The predicted resultant temperature at the boundary of the chronic mixing zone is 19.4 °C. The chronic dilution factor is 19:1. Since the receiving water temperature is below the critical



temperature, the incremental increase in temperature is defined as  $16/T$ , where T is the ambient temperature. The allowed incremental increase is 0.9 °C. The actual increase is the same as the allowed increase; therefore, the water quality criteria are met at the boundary of the chronic mixing zone.

Outfall 008: The receiving water temperature at the critical condition is 18.5 °C and the effluent temperature is 39 °C. The chronic dilution factor is 35:1. The predicted resultant temperature at the boundary of the chronic mixing zone is 19.00 °C. The actual increase is below the allowed increase of 0.87 °C; therefore, the water quality criteria for temperature are met.

No temperature limitations are placed in the proposed permit; however, the Permittee is required to monitor temperature.

pH limitations under continuous monitoring--In accordance with RCW 90.48, all dischargers shall use all known available and reasonable methods of treatment. The department may establish more restrictive standards than established by the EPA to conform to state law.

EPA has published a standard variance for pH at industrial plants having continuous pH measuring devices (40 CFR Part 401.17.) This variance allows an uncontrolled pH discharge beyond the permitted range for 1 hour at any pH level, and total pH excursions of up to 7 hours, 26 minutes per month. This variance does not take into consideration the type of treatment provided, the strength of acidity or alkalinity of the waste, the volume of waste, or the receiving water characteristics and the subsequent effect on the aquatic community.

In this NPDES permit the pH variance allowance was further restricted by the department to one pH unit beyond the permitted range. Excursions between 4.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 26 minutes per month. Any excursions below 4.0 and above 10.0 for more than 10 consecutive minutes shall be considered violations. The instantaneous maximum and minimum pH shall be reported monthly.

Because of the high buffering capacity of marine water, compliance with the technology-based limits will assure compliance with the Water Quality Standards for Surface Waters.

Fecal coliform –Outfall 001, 003, and 008 will be abandoned when outfall 100 becomes operational. With the limited amount of data from the three outfalls and with these outfalls being abandoned in 2004, Ecology will require monitoring for fecal coliform when the new outfall starts servicing the mill.

Turbidity--The impact of turbidity was evaluated based on the range of turbidity in the effluent and turbidity of the receiving water. Due to the large degree of dilution, it was determined that the turbidity criteria would not be violated outside the designated mixing zone.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent



limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The toxics present in the discharge are given in the table listed under 'Wastewater Characterization' above. A reasonable potential analysis was conducted on these parameters to determine whether or not effluent limitations would be required in this permit. The reasonable potential analyses showed that none of the chemicals found in the effluent were above the water quality criteria at the edge of the acute or chronic mixing zone boundary.

#### STORMWATER

Stormwater from the majority of the facility is treated and discharged with the process water. A very minor amount (<1%) is discharged directly to the East Waterway of Everett Harbor. The bulk of the sources for these direct discharges are vehicle loading areas and parking lot runoff. The facility will be required to use Best Management Practices (BMP) for all stormwater runoff.

#### WHOLE EFFLUENT TOXICITY

The last WET testing for the acute and chronic tests species was performed about 10 years ago. Because the WET rule has changed, the Permittee is constructing a new outfall, the dilution factor will change, and the mill processes have changed, the Permittee is required to re-characterize their effluent in the proposed permit for outfall 100. The Permittee will be required to recharacterize the acute and chronic toxicity of the effluent after completion of the new combined outfall 100 in the first year of the permit term. These studies are delayed until outfall 100 is operational because of timing. By the time a year long study could be done on outfalls 001, 003, and 008, they would be inoperative.

#### HUMAN HEALTH

Washington's water quality standards include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The Department has determined that there are no reasonable potential to exceed the health quality criteria.

#### SEDIMENT QUALITY

Outfall 100 is being designed to discharge in an area of deep water where there is currently little or no sediment contamination. Due to the high degree of treatment provided to both the K-C and municipal effluents which will be discharged from this outfall, and due to the high degree of dispersion which will be provided, there is little likelihood of sediments accumulation. Nevertheless, Ecology believes that a baseline sediment evaluation should be conducted so that any effects over time can be evaluated. All of the current outfalls will be abandoned. Therefore, Ecology will not require sediment monitoring of outfall 001, 003, or 008 during the terms of the proposed permit.

The Permittee will only use outfalls 003 and 008 during mill power outages, similar emergency events, and mill shutdowns. The use of these outfalls is expected to be infrequent. The permit

requires the Permittee to report the time and duration of each use of these outfalls on their monthly DMR reports.

*GROUND WATER QUALITY LIMITATIONS*

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). The Permittee has no discharge to ground water; therefore, no limitations are required based on potential effects to ground water.

*COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED 1991*

Parameter	Existing Limits	Proposed Limits
BOD		
Monthly Average	15,967 lbs/day	18,100 lbs/day
Daily Maximum	30,577 lbs/day	34,500 lbs/day
TSS		
Monthly Average	23,919 lbs/day	25,900 lbs/day
Daily Maximum	44,558 lbs/day	48,400 lbs/day
pH		
Outfall 008		
Minimum	5 SU - 1 SU for $\leq 60$ minutes <sup>1</sup>	5 SU - 1 SU for $\leq 60$ minutes <sup>1,3</sup>
Maximum	9 SU +1 SU for $\leq 60$ minutes <sup>1</sup>	9 SU +1 SU for $\leq 60$ minutes <sup>1,3</sup>
Outfall 001 & 003		
Minimum	5 SU – 1.5 SU for $\leq 30$ minutes <sup>2</sup>	5 SU –1 SU for $\leq 60$ minutes <sup>1,3</sup>
Maximum	9 SU +1.5 SU for $\leq 30$ minutes <sup>2</sup>	9 SU +1 SU for $\leq 60$ minutes <sup>1,3</sup>
Outfall 100		
Minimum		5 SU – 1 SU for $\leq 60$ minutes <sup>1,3</sup>
Maximum		9 SU +1 SU for $\leq 60$ minutes <sup>1,3</sup>

<sup>1</sup> Total exceptions  $\leq 7$  hours 26 minutes per month

<sup>2</sup> Total exceptions for both outfalls  $\leq 90$  minutes per month, no individual excursion lasting more than 30 minutes, and no individual excursion shall exceed the range of 3.5 to 10.5 for more than 10 consecutive minutes.

<sup>3</sup> Any excursions below 4.0 or above 10.0 for more than 10 consecutive minutes shall be considered violations. Excursions between 4.0 and 5.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length.

## **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

## **LAB ACCREDITATION**

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for biochemical demand, total suspended solids, and pH.

## **OTHER PERMIT CONDITIONS**

### *REPORTING AND RECORDKEEPING*

The permit condition S3 is based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

### *NON-ROUTINE AND UNANTICIPATED DISCHARGES*

Occasionally, this facility may generate wastewater which is not characterized in their permit application because it is not a routine discharge and was not anticipated at the time of application. These typically are waters used to pressure test storage tanks or fire water systems or leaks from drinking water systems. These are typically clean waste waters but may be contaminated with pollutants. The permit contains an authorization for non-routine and unanticipated discharges. The permit requires a characterization of these waste waters for pollutants and examination of the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and opportunities for reuse, Ecology may authorize a direct discharge via the process wastewater outfall or through a storm water outfall for clean water, require the wastewater to be placed through the facilities wastewater treatment process or require the water to be reused.

### *SPILL PLAN*

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080. The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

### *SOLID WASTE PLAN*

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste. This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

### *EFFLUENT MIXING STUDY*

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). Condition S 13 of this permit requires the Permittee to accurately determine the mixing characteristics of the discharge for outfall 100. Mixing will be measured or modeled under conditions specified in the permit to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary.

### *TREATMENT SYSTEM OPERATING PLAN*

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

### *GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

## **PERMIT ISSUANCE PROCEDURES**

### *PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

## **RECOMMENDATION FOR PERMIT ISSUANCE**

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for 5 years.

## **REFERENCES FOR TEXT AND APPENDICES**

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information

(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

## **APPENDIX A--PUBLIC INVOLVEMENT INFORMATION**

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department will publish a Public Notice of Draft (PNOD) on July 1, 2003 in Everett Herald to inform the public that a draft permit and a fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Don Nelson  
Industrial Section  
Department of Ecology  
P. O. Box 47706  
Olympia, WA 98504-7706

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the sixty (60) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within sixty (60) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 360-407-6940, or by writing to the address listed above.

This permit and factsheet were written by Don Nelson.

## **APPENDIX B--GLOSSARY**

**Acute Toxicity**--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

**AKART**-- An acronym for “all known, available, and reasonable methods of treatment”.

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation** --The average of the measured values obtained over a calendar month's time.

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**--The intentional diversion of waste streams from any portion of a treatment facility.

**Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity**--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)**--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Compliance Inspection - Without Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.



**Compliance Inspection - With Sampling**--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

**Composite Sample**--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity**--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring** --Uninterrupted, unless otherwise noted in the permit.

**Critical Condition**--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor**--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report**--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Major Facility**--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.



**Maximum Daily Discharge Limitation**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility**--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone**--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)**--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

**pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Quantitation Level (QL)**-- A calculated value five times the MDL (method detection level).

**Responsible Corporate Officer**-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Upset**--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit**--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

## **APPENDIX C--TECHNICAL CALCULATIONS**

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.

## **APPENDIX D--RESPONSE TO COMMENTS**

### **Comments organization**

The comments have been grouped into categories A through I in order to avoid repetitive answers to similar comments. There were a large numbers of emails that had the same comments. The comments similar in nature were summarized into one statement so the response could be given only one time. Comments that were similar but had minor differences were subgrouped together with one response for the entire group. KCWW comments were included in their entirety since they were statements.

The comments were grouped into the following categories:

- A.** Mixing zones
- B.** TCF bleaching and increases of toxic chemicals in discharge
- C.** Zero discharge
- D.** Netting out furan
- E.** Increase in BOD and TSS limits
- F.** AOX
- G.** Permit Issuance
- H.** General comments
- I.** Letters and data

### **Permit Writer's changes**

Changed the monitoring frequency of 2,3,7,8-TCDD and 2,3,7,8-TCDF from quarterly to monthly to be in compliance with the Cluster Rule - 40 CFR 430.

**A. Mixing zone**

Comment A.1

Commenters stated that the sediment study and mixing zone dilution factors for outfall 100 should be completed and incorporated into the permit limitation before allowing any discharge from the outfall.

Response

*The reasonable potential analysis showed that there were no chemicals in the effluent that exceeded water quality at the edge of the dilution zone. The studies referred to are to be completed during the first year of the proposed permit. The initial discharge will not harm the biota during this short period. The requirements for a sediment study and a dilution study remain unchanged in the proposed permit. After the sediment study is completed, we will perform an analysis on the study results to ascertain if any limits are needed. If limits are required, we will modify the permit at that time with public review. If we delayed issuing the permit until these studies are completed, we would be delaying other important conditions of the proposed permit.*

Comment A.2

Several commenters stated that the size of the mixing zone for all parameters should be minimized in accordance with the regulations, WAC 173-201A-100(6).

Response:

*The concentrations of the pollutants within the mixing zone were minimized by requiring the permittee to use critical receiving water values including the worst case conditions of the receiving water and the maximum flow of the effluent when determining the dilution factors.*

Comment A3

Several commenters stated that mixing zones should be prohibited for those substances that are persistent bioaccumulative toxics (PBTs).

Response:

*Regarding PBTs, the dioxin limitation is a technology limit and is not a function of the dilution zone. Mercury is below the water quality criteria at the end of the pipe and likewise is not dependent on the dilution zone. There were no other PBTs detected in the effluent. Prohibition of a mixing zone for PBTs is not applicable to the discharge because it was not used.*

Comment A4

WAC 173-201A-100(4) states, "No mixing zone shall be granted unless the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the department." Where is this analysis and Ecology's official determination? A

recent Pollution Control Hearings Board regarding Ecology's industrial stormwater permit case supports the importance of this section of the rule. We ask an analysis be provided that meets the requirements of this section.

Response

*The sizes of the mixing zones used in the permit are defined by WAC 173-201A-100 as recommended in the Permit Writer Manual methodology for dischargers that have no encroachment on sensitive habitat and do not overlap with other dischargers' mixing zones. With the dilution factor obtained from the mixing zone analyses, we performed a reasonable potential analyses for each pollutant detected in the effluent that could affect the health quality and the water quality of the receiving waters. Similar analyses will be required for the new outfall dilution study.*

*In the reasonable potential analyses performed for all detected chemicals, there are no indications that the permit, as written, affects any sensitive or important habitat nor interferes with existing or characteristic uses, results in damage to ecosystems, or adversely affects public health.*

*The same or similar analysis will be performed during the writing of the next permit.*

Comment A5

Mixing zone is authorized by state rules but it is not a universal right that the permittee is given the maximum size mixing zone. Before a mixing zone is given the permittee must be at AKART.

Response:

*See response to comment B.1. The bleaching method is at AKART, therefore, the facilities is allowed a mixing zone. See response to comment A.4.*

Comment A.6

Mixing zones are only for a permittee if it is clearly shown that the permittee truly needs a mixing zone in order to reasonably comply with the Clean Water Act. The requirements for mixing zones (WAC 173-201A-100) suggest that mixing zones are only a temporary measure for helping industries that are doing their very best to comply with water quality standards but, because they have reached the edge of technology in their fields, cannot do any better at present. In that spirit, Everett Shorelines Coalition believes that mixing zones should be used very sparingly for temporary situations and not as a standard part of NPDES permits. After all, water quality standards are supposed to be "technology forcing", but will not force technology as well if everyone gets a standard "waiver" in the form of a mixing zone. This philosophy, as well as Ecology's reasoning for allowing a mixing zone in the first place, should be made clear in the permit so that citizens can see and trust the process of allowing a mixing zone. Everett Shorelines Coalition asks if Ecology considered whether Kimberly Clark even truly needs the mixing zone. This is not clear from the proposed permit.

Response:

*Mixing zones are not temporary measures for helping industries meet the water quality requirement. The regulations state that if the permittee meets certain criteria, then a mixing zone can be granted if they cannot meet the water quality criteria at the end of the pipe for any pollutant. Kimberly Clark Worldwide, Inc. (KCWW) meets the criteria for mixing zones which are necessary for the company to meet the water quality requirements for ammonia, copper, zinc, and the whole effluent toxicity. Mixing zones for the facility were granted for the five year term of the permit. The same analysis will be performed during the writing of the next permit. We do not consider that allowing a mixing zone is a waiver since the water quality standards allow a mixing zone.*

Comment A.7

Ecology should clarify how the size of the mixing zone for Outfall 100 was determined and then should minimize the size of the mixing zone as much as possible. In addition, we request that there be public notice and comment on the size of the mixing zone. The size of the mixing zone, especially for a plant that releases such huge amounts of conventional pollutants is a local issue and should be open to public input. The public has a right to know and comment on the fact that waters that they might use do not meet water quality standards.

Response:

*The size of the mixing zone for Outfall 100 is defined in the proposed permit. The dimension of the chronic mixing zone is 650 feet from any diffuser per WAC 173-201A-100(8) (b). The depth of the receiving water is 350 feet Mean Low Water (MLLW). The dimension of the acute mixing zone is 65 feet from any diffuser per WAC 173-201A-100(7)(c). A new mixing zone study will be performed once the new outfall is installed. If necessary, the permit limits will be modified. Permit modification allows for public review and comments. The conventional pollutant limits are technology based and are independent of the mixing zone. The permittee needs a high dilution ratio to be in compliance with the whole effluent toxicity (WET) testing requirements. That is one reason the new outfall was constructed.*

*The dilution factors are minimized since we required the permittee to use the critical condition of the receiving waters and the highest wastewater flows as input to the model used to determine it. See response A2.*

Comment A.8

The idea of mixing Kimberly-Clark's effluents with treated water from the Everett Wastewater Treatment Plant and piping it further out into Puget Sound is a useless expenditure of public funds, since dilution will not render dioxin harmless. It will settle, with the rest of the sludge at the bottom of the bay and rise through the food chain to harm fisheries, humans and marine mammals such as whales and seals. Our local whales are already the most polluted in the world. No wonder so many have sickened and died!

Response:

*KCWW's, Inc. outfalls 003 and 008 currently discharge into the Everett Harbor where the circulation is low, flushing is slow, and the receiving water is shallow. The new outfall 100 is in a location that will reduce the impact on the receiving water due to better dilution, better circulation, and faster flushing. The combination of treated wastewater from with the cities of Everett and Marysville with KCWW was not done to dilute the dioxin and furan. Currently, no dioxin can be detected in the effluent. It is expected that failure to detect dioxin will not change in the terms of the proposed permit. By limiting dioxin in the bleach plant effluent rather than the final effluent, there will be a better chance of detecting dioxin since there will be less dilution.*

Comment A.9

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria. Yet several factors combine to make this unreasonable:

- 1) Dioxin is a known carcinogen.
- 2) The characteristic uses of the outfall zones (003 and 008: Everett Harbor, Class B marine waters, and Port Gardner Bay, Class A marine waters) include: "fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation" (according to NPDES Permit WA-000062-1 fact sheet). Even with an effluent pipe that helps to avoid Everett Harbor, there are still substantial possible impacts to Port Gardner Bay.
- 3) There are significant additional point and non-point pollution sources in the vicinity: the City of Everett (stormwater discharge), the Everett Naval Base, (stormwater discharge), and the Port of Everett's log yard and log rafting (non-point).

Response

*See response to comment A3 for discussion on dioxin.*

*The permittee's discharge should be unaffected by the other point and nonpoint sources in the vicinity of the permittee's new outfall and vice versa. Outfalls 003 and 008 will not be used except in emergency situations after the early part of 2004. A reasonable potential analysis for water quality and health quality chemicals will determine if there are any exceedences of the standards. This analysis will be performed on outfall 100 after the dilution ratio is known. If this analysis indicates that limits are needed, the permit will be modified with public review.*

Comment A.10

The mixing zone where water quality criteria are exceeded should be posted.

Response



*The posting of the boundary of the mixing zone is not practical. Any method of marking the boundary of the dilution zone is beyond the requirements of the NPDES program.*

Comment A.11

WAC 173-201A-100(5) states that "water quality criteria shall not be violated outside of the boundary of a mixing zone as a result of the discharge for which the mixing zone was authorized." How is Ecology enforcing this requirement? There needs to be actual testing at the edge of the mixing zone on a regular basis to ensure that the model is accurate and water quality criteria are being met.

Response

*Currently, testing at the edge of the dilution zone is not practical. The mixing zones exist in theory, but daily and seasonal fluctuations make it impossible to consistently define its boundaries. Therefore, modeling using worst case assumptions is the accepted standard. However, Ecology has an ambient monitoring program for various pollutants at different locations. The criteria for sampling point locations are independent of the acute or chronic boundary of any outfall. You may find the ambient data on the Ecology WEB site. The location is <http://www.ecy.wa.gov/apps/eap/marinewq/mwdataset.asp?ec=no&scrolly=75&htmlcsvpref=csv&estuarcycode=1&staID=104&theyear=1998&themonth=1>*

Comment A.12

Similarly, the rationale cited for broad mixing zones at the discharge outlet fails to address the primary objective of the NPDES system: working toward elimination, to the extent technologically feasible.

Response

*Comments noted. This permit is consistent with current regulations, both federal and state, that allow a mixing zone.*

Comment A.13

K-C meets water quality standards for mercury without a mixing zone. The assertion that K-C is violating the water quality standard for mercury is unfounded. However, K-C believes that mixing zones are an entirely appropriate regulatory provision and should be granted in accordance with existing practice:

- a. As discussed in the state *Permit Writer's Manual* mixing zones "...are a regulatory recognition that the concentrations and effects of most pollutants diminish rapidly after discharge due to dilution."
- b. The *Permit Writer's Manual* also states that mixing zones should be given only if the discharger has applied AKART (All Known and Reasonable Methods of Treatment). K-C has done so, and in fact has gone beyond these requirements.

- c. The size requirements of the mixing zones are explicitly defined by regulation. There is no reason for Ecology to modify the guidelines in this case.
- d. Ecology's Whole Effluent Toxicity (WET) rules are directly based on calculations related to effluent concentrations at mixing zone boundaries. This entire regulation would have to be reworked from the ground up if mixing zones were disallowed.
- e. K-C, the City of Everett, and the City of Marysville are constructing a regional outfall at considerable expense to comply with water quality standards. The entire rationale of moving discharges from areas with poor mixing characteristics such as the Snohomish River is that better dilution will be available in deep water where there is strong intertidal flushing. The outfall was designed specifically to provide the proper dilution to insure compliance with Whole Effluent Toxicity limits utilizing existing mixing zone allowances. It would be unreasonable after advocating and approving the construction of this new outfall to change the requirements and disallow mixing zones. That would nullify the principal rationale for the entire outfall project, not only for K-C, but also for the municipalities.

Response:

Noted.

**B. TCF bleaching and increases of toxic chemicals in discharge**

**Comment B.1**

We believe that TCF should be considered AKART (at least for the papergrade sulfite pulp production) and that Ecology has not fully evaluated AKART for fecal coliform. Ecology must rectify this problem before issuing a mixing zone.

We understand that Ecology made the AKART determination based on information from the 1998 effluent guidelines for the ammonia sulfite and non-integrated tissue paper grade. The effluent requirements chosen by Ecology are not AKART and are not protective of human health and the environment. In addition, Ecology merely defaulted to the technology already in place at the Everett mill as AKART. Ecology should do a specific AKART analysis for this mill that specifically evaluates chlorine-free technologies.

Response:

*All of the pulp that is produced at the mill is paper grade pulp. The mill is an ammonia based sulfite mill. The Federal Regulation defining the ammonia based sulfite Subcategory is 40 CFR 430.53(2)(i). The regulation specifies that elemental chlorine free (ECF) bleaching is the method used for pulp mills in this subcategory. The non-integrated pulp is added to the process after the sulfite pulp is bleached; therefore no bleaching of the non-integrated portion of the pulp used to make paper is bleached at the site. Neither ECF nor TCF is applied because no bleaching occurs at the site for the non-integrated pulp. These*



*federal regulations were promulgated on April 15, 1998. The permit writers' manual recommends that if the effluent guidelines are less than ten years old, they can be equated to AKART. The 1998 effluent guidelines were equated to AKART in the proposed permit. No sensitive or important habitat is lost nor does the discharge interfere with the use, result in damage to the ecosystem, or affect public health as shown in the reasonable potential analysis.*

*During the promulgation of the 1998 federal effluent guidelines the Environmental Protection Agency (EPA) analyzed data from ammonia based sulfite mills including the KCWW mill and concluded that these facilities could not make their product with the TCF bleaching method. In this analysis, EPA considered technology, cost, and product suitability. EPA determined that TCF was not appropriate for the ammonia based sulfite mills. EPA further determined that ECF was the appropriate type of bleaching for the KCWW mill. ECF bleaching process is equated to AKART.*

*KCWW tried making unbleached products several years ago and there was very little interest in these products.*

#### Comment B.2

We support Ecology requirement that Kimberly Clark conduct a comprehensive analysis on the costs, benefits and feasibility of conversion of the plant to "totally chlorine free" technology as part of the proposed permit. Everett Shorelines Coalition strongly believes in technology forcing and the power of the market to produce pollution control and pollution elimination equipment over time. We believe that the paper industry is dragging its feet unnecessarily during this technology forcing process by continuing to rely on chlorine dioxide. We believe that chlorine dioxide bleaching is no longer the best or even the cheapest of "all known, available, and reasonable methods of prevention, control, and treatment". For example, in 2000 a Louisiana Pacific pulp and paper plant in California switched to a closed cycle totally chlorine free process (and will save enough money from reduced fuel and chemical costs to pay for the entire conversion in roughly six years after the switch), and a Kimberly Clark plant in Australia has also already switched to a totally chlorine free process. The comprehensive analysis could pave the way for Kimberly Clark to do the same in Everett before the next NPDES permit update in five years. While Ecology has admitted that they do not have the expertise to analyze the report thoroughly, we hope that Ecology encourages Kimberly Clark as much as possible to conduct a rigorous and meaningful comprehensive analysis and ultimately to switch to "totally chlorine free" technology.

#### *Response:*

*The International Joint Commission (IJC) is a body that monitors and reports biennially on the progress the Governments of the United States and Canada make towards restoring and maintaining the waters of the Great Lakes Basin Ecosystem under the Great Lakes Water Quality Agreement. The Agreement commits both nations to the policy that:*

*"The discharge of toxic substances in toxic amounts be prohibited and the discharge of any or all persistent toxic substances be virtually eliminated."*

*In its 10th Biennial report, the IJC report recognized the pulp and paper industry and ECF technology for a significant accomplishment. The IJC stated:*

*"A notable accomplishment occurred when the pulp and paper industry changed its process for pulp bleaching by substituting chlorine dioxide for elemental chlorine. This substitution virtually eliminated the production of dioxins from pulp and paper mills."*

*From reference 8 on The Alliance for Environmental Technology (AET) WEB site, [http://aet.org/reports/market/aet\\_trends\\_2000.html](http://aet.org/reports/market/aet_trends_2000.html).*

*The article also states that ECF bleaching is growing on a world wide basis at about 10 percent per year.*

*Ecology investigated both the Louisiana Pacific and the Australian mills and compared the two mills with KCWW.*

*The pulp mill near Samoa, California was formerly owned and operated by Louisiana Pacific (LP) but is now owned and operated by Stockton Pacific Enterprises, Inc. (SPC). The mill makes pulp by the Kraft pulping method. The mill was transferred to Samoa Pacific Cellulose on February 23, 2001. The Samoa Pacific Cellulose almost went bankrupt in early 2003. The SPC purchased the pulp mill earlier this year by paying off the principal lenders, Samoa Pacific and LP after the mill went back to the debtors. It is true that part of the pulp made by the mill was bleached by TCF bleaching process from 1996 to present. LP had trouble with the TCF bleached pulp since it had a yellow tinge to it and an odor. LP informed Ecology that there were only two buyers of the TCF pulp, one in the USA and another one in Europe. At present the mill produces about 25 percent TCF pulp and 75 percent unbleached Kraft pulp. The percentage of TCF dropped from 50 percent last year to 25 percent this year. The main buyer for TCF pulp is still in Europe. There is very little interest in the USA market for TCF pulp. The mill makes 700 metric tons of pulp per day. The TCF pulp that is sold to the European market goes into a wide array of paper products. The European pulp market has a lower brightness requirement than the American market.*

*The Tantanoola pulp mill, near Mt. Gambier, South Australia is a ~250 admt/day magnesium bisulfite mill. Its pulp plantation grows radiata pine. The mill started up in 1992. All of their pulp is used internally to make tissue products or fluff pulp for diapers. They are not a "market" pulp mill. Their major problem has been extractives and pitch.*

*The bleaching process used at Tantanoola is often referred to as "steep" bleaching. The Scott Canada, New Westminster mill did a bit of "steep" bleaching on their small amount (< 20 admt/day) of thermo-mechanical pulp they produced.*

*"Steep Bleaching" is a basically a single stage alkaline, hydrogen peroxide bleaching. It is used to bleach pulps such as sulfite and certain mechanical pulps which are easier to bleach than Kraft pulps. Typically "steep" bleaching can raise the brightness of sulfite or mechanical pulp by ~30 ISO brightness points. If more than 30 points of brightness are required to bleach the pulp, the "steep" bleaching is not the process of choice. At Tantanoola, an incoming brownstock with brightness of ~55 ISO can be brightened to ~ 85 ISO brightness.*

*The washed brownstock is mixed with a solution of hydrogen peroxide, sodium hydroxide, sodium silicate and diethylenetriamine-pentaacetic acid (DPTA) is pressed and placed in a storage pile to "steep" for 3 to 4 days at 35 °C. The required process conditions are favorable to South Australia's climate.*

*At Tantanoola, the pulp is kept in a pile in an outside storage building. For this reason, the process tends to be restricted to low tonnage mills and requires a large covered storage area. With a large size pulp mill, the movement of pulp and storage requirements would be impractical.*

*The Tantanoola mill makes fluff pulp for diapers. The required properties at KCWW are different than those required at the Australian mill. The most important property difference is strength of the paper. Fluff production does not require strength, only absorbancy. KCWW is space limited. The mill at Tantanoola was built in 1992 and designed to bleach by the steep bleaching method and with a cultured forest to support the mill. The KCWW would have to be retrofitted with the system at a unreasonable cost. The KCWW chlorine dioxide bleaching towers are vertical because of the space limitations at the site. The Tantanoola mill does make a small amount of paper towel and tissue paper but the length of the fibers from the radiata pine allows the production. The brightness of KCWW unbleached pulp is 47. If 30 points is added to the KCWW pulp the final brightness would be no greater than 77. They are competitive with a brightness of 81.7. The steep method of bleaching does not meet the required brightness of their market niche.*

*The KCWW mill is different than the California or Australian mills both in the pulp production methods and the products that they sell. We consider the KCWW's system to be at AKART for all parameters. Therefore, KCWW is allowed a mixing zone since they are at AKART. See response to comment A.4 for size and way that the mixing zone was determined.*

Comment B.3

The TCF study to be done in the proposed permit is reasonable.

Response:

Noted.

Comment B.4

Kimberly - Clark has demonstrated capability for improvement via investment in in-plant and in-process upgrades, plus the planned outfall upgrade, while retaining economic viability. DOE should condition permit renewal upon pursuit of further reductions in discharge (with particular emphasis upon dioxin and furan discharges), not mere compliance with limits already achieved.

We do not take these problems associated with persistent pollution lightly and neither should Ecology. With this permit, we have a great opportunity to eliminate dioxin and other persistent pollution at the Kimberly-Clark mill, using existing authority under the state law and rules. Ecology must take this opportunity to protect human health and the environment from persistent toxic pollution by establishing effluent limits based on chlorine free technology.

Response:

*ECF bleaching was determined to be AKART in response to comment B.1 and B.2. The mill is not required to go above the AKART requirements. They are working on their furan problem. See response to comments A.3, and D.2.*

Comment B.5

Industry has moved toward TCF and PCF processes. The Chlorine Free Products Association (<http://www.chlorinefreeproducts.org>) is an example of such a movement. This spring, they announced continuing successes with groups like Cascades Tissue Group who have expanding their certification of pulp and paper facilities (to SMMI standards) to additional facilities across North America.

Response

*The Chlorine Free Products Association (<http://www.chlorinefreeproducts.org>) web site address is included for informational purposes.*

Comment B.6

It was also stated that K-C discharges of mercury were not meeting water quality standards. This is not true.

- All three of the Everett mill effluents are at least 10 times lower in total mercury than the established state water quality standards.
  - Outfall 001: 0.0024 parts per billion (ppb)
  - Outfall 003: 0.0061 ppb
  - Outfall 008: non-detect at less than 0.001 ppb

The Washington State water quality standards for mercury are:

- Fresh Water Acute: 2.1 ppb
- Fresh Water Chronic: 0.012 ppb
- Marine Water Acute: 1.8 ppb
- Marine Water Chronic: 0.025 ppb

It should also be noted that drinking water standards allow up to 2 ppb of mercury.

K-C does not use mercury in its processes. The trace quantities in the effluent are present only because wood contains some mercury molecules, just like it contains trace quantities of many other elements. This is not an environmental problem, nor are there any technologies to control such tiny quantities of this substance.

It should be noted that the Everett mill Toxic Release Inventory (TRI) as reported to EPA shows a significant decrease in the total quantity of mercury discharged from the mill. This is not because of any change in the process, but because of improved laboratory detection limits. In the 2000 TRI report, the mill relied on 1995 data which had 500 parts per trillion (ppt) detection limits for mercury. The mill detected no mercury with this test method. However, since it was known the mercury is a trace component of wood, EPA procedures required utilizing half the detection limit to calculate the supposed release. Now that a new test method is available which can detect mercury down to 1 ppt, we now know that that the 2000 TRI report overstated the situation. Hence the reduction in the estimated total pounds per year of mercury discharged to Port Gardner from the mill:

2000: 26 pounds  
2001: 3 pounds  
2002: 2 pounds

Response

*Noted*

Comment B.7

It is disappointing that certain commenters appear to give no credit for the tremendous environmental improvements made by the Everett mill and the pulp and paper industry in general over past years. Comments that “K-C is just getting by” are not accurate. Fifty years ago K-C’s predecessors at Everett discharged an average of 800,000 pounds per day of BOD into Everett Harbor. In 2002 that discharge was only 9,000 pounds, a 99 percent reduction. Everett marine waters are cleaner today than they have been for 100 years.

We would also like to remind Ecology of the Everett mill’s ongoing strategic environmental plan:

- a. Phase I - The pulp mill was upgraded in 2000 to meet the requirements of the EPA Pulp and Paper Industry Cluster Rule. This project eliminated chlorine bleaching of pulp and lowered dioxin in bleaching effluents to undetectable levels.

- b. Phase II – Upgrades to the Everett wastewater treatment plant and associated systems are now being completed. These improvements have enhanced system reliability and when completed will allow a significant reduction in discharges from the mill.
- c. Phase III - Installation of a new deep-water outfall is also ongoing and will improve receiving water quality in Port Gardner Bay and the Snohomish River. This project has been designed and is being constructed in cooperation with The City of Everett. Start up is anticipated in February 2004.
- d. Environmental Capital. Costs of these improvement projects are:
  - Phase 1: \$27,600,000
  - Phase 2: \$ 6,600,000
  - Phase 3: \$30,000,000

These are not the accomplishments and ongoing projects of a company that is trying to shirk its environmental responsibilities or is “just trying to get by.” We firmly believe the permit as currently drafted is fair, follows the requirements of law, and should be adopted.

Response

*Noted.*

Comment B.8

I don't understand why the dioxin limit would not be based on the water quality standard. Can you explain this?

Response

*Since the water quality criterion for dioxin is below the detection limit and the technology based limit is at the detection limit, we can only affirm that dioxin is in the effluent if it is above the technology limit. The limit would be the same whether it was based on the water quality criteria or the technology limitations. However, the location of the compliance point for dioxin at the bleach plant effluent makes the technology based limit more stringent than the water quality based limit would be if compliance was measured at the final effluent.*

*The water quality standard for dioxin is 0.014 ppq. The best conventional analytical procedure can achieve is only 1 ppq under the best matrix condition. EPA has set a “minimum level” of detection of 10 ppq. The minimum level is the level at which the analytical system gives a recognizable signal and an acceptable calibration point. The best possible detection is two orders of magnitude above the standard. The minimum level at the bleach plant effluent is three orders of magnitude above the standard. As a result, it is not possible to enforce the water quality criteria.*



Comment B.9

We understand that Washington State is already discharging more pollution into our waters than Oregon, Idaho, Montana, and Alaska combined, even more than California, a much bigger state. The waste that Kimberly-Clark discharges includes some of the deadliest poisons known to man including dioxin, furans, mercury. Dioxin is a byproduct of bleaching pulp with chlorine. This is persistent, non-degradable, bioaccumulative poison that is a known carcinogen (increases lifetime cancer risk 1000 fold), as well as causing reproductive, developmental, neurological, mental, and immunological harm to humans and animals, according to repeated studies conducted by scientists for the U.S. Environmental Protection Agency for the past 18 years. It is one of the deadliest constituents of Agent Orange that has harmed Vietnam veterans who have come in contact with it, and their children.

Response

*We are unaware of the data used to support the claim that Washington discharges more pollution than the combined states of Oregon, Idaho, and Montana. There are no indications that the company discharges dioxin above the detection limit or mercury above water quality criteria. The company has detected furans above the detection limit. They are working toward reducing the amount of furans in their effluent in order to meet the furan limit.*

Comment B.10

Kimberly-Clark must not be allowed to increase its pollution. Instead, a strict timetable must be set up for it to join other pulp mills which already use oxygen based rather than chlorine-based bleaching processes.

Response

*Oxygen based delignification alone will not produce the products that KWCC makes. However, the permittee is required to perform a TCF feasibility study. The company does use oxygen and hydrogen peroxide in the extraction stage. See response to comments B.1 and B.2.*

Comment B.11

Another reason that further studies of TCF technology are counterproductive is that ECF technology is equally satisfactory in lowering dioxin (2,3,7,8-tetrachloro-dibenzo-p-dioxin, also called 2,3,7,8-TCDD) in the bleach plant effluent to non-detect levels. It takes free chlorine to produce dioxin; chlorine dioxide simply does not generate it. It was implied at the hearing that K-C discharges huge quantities of dioxin. In fact, since the start up of the new bleach plant in October of 2000, each and every sample of bleach plant effluent analyzed has been non-detect for 2,3,7,8-TCDD. The test method detection limit is 10 parts per quadrillion (ppq). 1 ppq = 1 second in 3,200,000 years!

K-C does report measurable quantities of the seventeen dioxin and furan congeners in its overall mill discharge. As Ecology is aware, the source of this material is boiler ash, a discharge which

has no relationship to pulp bleaching. As Ecology is also aware, K-C has spent \$1,500,000 to voluntarily install an ash collection system that isolates boiler ash from the primary treatment plant and hence the mill effluents. Since the ash is extremely abrasive and corrosive, it has required time, money, and ingenuity to achieve a highly reliable system. The total annual emissions of the 17 reportable dioxin and furan congeners have shown a steady decline since the system went into operation. Total effluent discharges of the 17 congeners during the past three years are as follows:

2000: 0.052 pounds/year  
2001: 0.038 pounds/year  
2002: 0.018 pounds/year

Dioxin (2,3,7,8-TCDD) represents approximately 1 percent of the total congeners. These are very small numbers; nevertheless, we anticipate that further reductions in this already minute quantity of discharge will continue.

Response

*Noted.*

Comment B.12

Another comment was that K-C should adopt a totally chlorine free (TCF) process. K-C disagrees, as does the EPA.

The draft Cluster Rule Proposal in 1993 proposed that ammonium-based sulfite mills adopt a totally chlorine free process. However studies by the Everett mill (then Scott Paper) and the Finch-Pruyn mill in Glens Falls, New York (the only other paper grade ammonium-based sulfite mill in the US) caused a change in this proposal. In the final Cluster Rule, EPA directed that mills in this category install elemental chlorine free (ECF) technology, in common with the great majority of chemical pulp mills.

Data presented by the Everett mill advocating the ECF technology was straightforward. While the capital cost of installing TCF vs. ECF was comparable, TCF processes simply do not make a pulp of sufficient strength and brightness to manufacture the products demanded by our customers.

EPA agreed that installing a technology which was unable to meet consumer requirements was inappropriate. In the final Cluster Rule as promulgated in 1998: "EPA concluded that TCF bleaching is not demonstrated and may not be feasible for the full range of products produced by ammonium-based sulfite mills in the United States." "This conclusion is based primarily on the greater difficulty in bleaching ammonium-based sulfite pulps (especially those pulps derived from softwood) without the use of chlorine-containing compounds compared to other sulfite pulps, and the inability to maintain product specifications for certain products within this segment using TCF bleaching."



K-C believes that Ecology should follow EPA directives in affirming that ECF is the technology basis for the Everett mill bleach plant. It should be also noted that even though there was no specific provisions in the current state NPDES permit requiring it, the mill was nonetheless legally obligated to install the mandated ECF technology on the timeline required by the Cluster Rule. The new bleach plant cost some \$27,600,000 and began operation in October of 2000, six months before the Cluster Rule deadline of April 2001. For activist groups to imply that this expenditure should not have been made or that this new equipment should now be tossed aside is entirely unrealistic.

In this regard, K-C accepts reluctantly the mandate in the draft permit to once again study TCF technology, but believes this issue has been studied extensively and there is no benefit to further review. The number of TCF mills in the US can be counted on one hand; the technology is simply not suited for the manufacture of a broad range of products and has not gained acceptance.

#### Response

*We agree that ECF is the preferred type of bleaching; however, the TCF study is necessary to ascertain if the facility could change to a TCF process. See response to comment B.1.*

#### Comment B.13

Please decrease the amount of chemicals that are released into the environment.

#### Response

*We have to issue NPDES permit in accordance with current rule and regulations. The amount of pollutants discharged at KCWW over the past ten years have substantially decreased, especially dioxins and furans.*

#### Comment B.14

While chlorine dioxide does generally reduce dioxin and furan below detection limits, concentrations below detection limits does not mean those concentrations are negligible. With plants as large as Kimberly Clark, these small concentrations must be multiplied by millions of gallons of wastewater per day and the number of days Kimberly Clark will continue to rely on chlorine dioxide to bleach pulp. The amount of dioxin and furan released over time is no longer “negligible” because it only takes a tiny amount bioaccumulated in animals to weaken or kill them. Further, because Kimberly Clark also releases large amounts of toxic chlorinated chemicals to the air, the sooner they switch to a totally chlorine process, the better for all of us. This fact makes Kimberly Clark a very large and important target for environmental groups around the state as well as small neighborhood volunteer groups such as ours.

Response:

*Dioxin is below the detection limit; therefore, it is indeterminate whether dioxin is present in the effluent. AOX limits have been placed in the proposed permit. See response to comment D.2 furan discussion.*

**C. Zero discharge**

Comment C.1

The Clean Water Act has a goal of zero discharge of pollution into our waterways. We should not be considering, ever, an increase in allowable pollution when permits are being renewed. Always we should be going in the direction of decreasing the substances we allow to be dumped into our waters. Consider also that the anti-backsliding provision of the Clean Water Act could expose both the State and the Kimberly-Clark mill to lawsuits if the volume of discharge from the mill is increased. Set a goal of zero discharge of pollution, and direct polluters to decrease the amount of discharge every permit cycle

The discharge of toxins into the waters of Port Gardner Bay and Everett Harbor is contrary to the Clean Water Act's goal of achieving zero discharge of any pollutants in to our nation's waters. It is especially tragic that this permit allows the discharge of persistent, bioaccumulative, and toxic chemicals, or PBTs, into Port Gardner Bay and Everett Harbor.

Response

*The current federal and state laws and rules allow discharge of limited amounts of pollutants. EPA developed the 1998 effluent guidelines considering the costs of removing pollutants, the wastewater treatment technologies, and the viability of the product produced. The results of their endeavors indicated that zero discharge from the pulp and paper industries is not feasible. See response to comment A.2 for dioxin and mercury discussion effluent.*

Comment C.2

The first step on the path towards zero discharge for mills is to eliminate all chlorine compounds used in the bleaching process. TCF technology eliminates dioxin and furan pollution as well as chlorinated organic pollution (AOX), which represents a significant amount of daily pollution from the mill.

Response:

*We have placed an AOX limit in the permit. See response to comment B.1 and B.2 related to chlorine dioxide bleaching.*

Comment C.3

Eliminate persistent toxic chemicals including mercury, dioxin, and PCBs

Response:

*None of these chemicals were detected in the effluent.*

Comment C.4

The Concept of Zero Discharge and EPA Effluent Guidelines

While it is true that the original Clean Water Act contained aspirational language that advocated the goal of zero discharge, available treatment technologies cannot yet achieve this goal. The substantive requirements that govern this and other wastewater discharge permits are contained in applicable laws, regulations, and, in particular, EPA effluent guidelines. EPA expends considerable effort and expense to periodically review these guidelines to ensure that they reflect the best available technology.

For the pulp and paper industry, the effluent guidelines were originally developed in the 1970's and were reviewed and revised as part of the Cluster Rule process less than ten years ago. In the original 1993 draft of these rules, EPA proposed a tightening of limits for conventional pollutants (BOD and TSS) for pulp mills. But upon further review, including an evaluation of new technologies and associated costs, EPA stated that "none of the technologies that EPA evaluated for the purpose of setting more stringent effluent limitations for conventional pollutants passed the BCT [Best Conventional Technology] cost test." They further found that "costs in this instance were disproportionate to the effluent reduction benefits to be achieved." EPA reaffirmed the existing BOD and TSS limits.

K-C believes the state should follow the EPA guidelines. Individual states do not have the resources to replicate EPA's exhaustive guideline development and review processes. Further, the purpose of national standards is to maintain consistency between and among states and ensure that a competitive advantage does not accrue to one area of the country. Thus K-C urges Ecology to follow the EPA guidelines, as recommended by Ecology's own Permit Writer's Manual.

The advocacy groups also questioned the use of mill production numbers to set discharge limits. Production rates, however, are inherent in the methodology employed by the guidelines. Using any basis other than production would misapply the EPA factors. Of course the production value should be current. K-C has supplied updated production data to Ecology.

Some commenters also suggested that since K-C runs consistently below the BOD and TSS limits calculated from the effluent guidelines that these discharge limits should be reduced. We disagree. K-C does average approximately half the current requirements and is investing capital to reduce conventional pollutant discharges to approximately one fourth of permit requirements. But upsets can occur, and the process does have variability. So K-C believes the standards need

to be high enough to protect against the occasional upset and recognize process variability, so that violations are not created while operating a process that is being appropriately managed and controlled. The guidelines take process variability into account; applying the mandated guidelines and applying production factors in the calculation of limits accomplishes that goal. There will be little incentive for companies to invest capital to decrease discharges if the result is stricter limits and increased risk of violations and fines arising from process variation.

Response

*Noted.*

**D. Netting out furan**

Comment D.1

There is a letter from EPA on the furan issue. Can you fax it to me at the below number?

Response

*The letter was faxed to the commenter. An unsigned copy is included in this document.*

Comment D.2

Several commenters stated that Ecology should not allow the permittee to “net out” furans.

Response

*Federal regulation, 40 CFR 122.45(g)(4), allows a company to net out pollutants that are taken from one water body and discharges into another water body. The regulation states: “Credit shall be granted only if the discharger demonstrates that the intake water is drawn from the same body of water into which the discharge is made. **The Director may waive this requirement if he finds that no environmental degradation will result**” (emphasis added). Since EPA approved the netting out of furan, a waiver has been granted and the permittee is allowed to net out furans. We agree that netting out furans is not a good long term approach; therefore, the permit has been revised to allow it on a temporally basis only. An order will be issued to KCWW for KCWW to significantly reduce the production of furans. The order will result in the elimination of the netting out of the furans in the permit within three and one half years of the effective date of the permit. This approach ensures that the facility will not delay taking necessary actions to be in compliance with clean water act requirements.*

*EPA’s effluent guidelines apply to two sulfite mills, the one in Everett and the other in upstate New York. In order to understand the furan production by the KCWW mill in Everett it would be helpful to compare the two mills with respect to water source, water treatment, product production including bleaching, and any other differences since they are both ammonia based sulfite mills although they produce different products. The KCWW mill produces tissue paper while the Finch Pruyn mill produces fine writing paper. The KCWW mill processes wood chips*

into pulp with batch digesters while Finch Pruyn uses a Kaymr continuous digester. The Finch Pruyn's mill bleaches their pulp with more chlorine containing chemicals than KCWW. The KCWW mill pulps about 45 percent softwood including hemlock and Douglas fir and 55 percent alder hardwood while the Finch Pruyn pulps douglas fir and hemlock softwood and birch, beech, maple and oak hardwoods at a ratio of softwood to hardwood of 1:1. The KCWW mill generates less AOX than the Finch Pruyn mill but generates more TCDF even though they use less chlorine containing chemicals. Both mills use surface water as their raw water source. Part of the problem may be how the raw water is treated. The KCWW raw water is heavily disinfected with chlorine solution while only about one third of the Finch Pruyn raw water is lightly chlorinated. The raw water that is disinfected at Finch Pruyn is used only in paper forming. The Finch Pruyn mill meets the 10 ppq limitation set by the effluent guidelines but KCWW mill does not. The KCWW mill is presently investigating why their mill is generating more TCDF including the raw water sources and the method of treatment of the raw water. It is unclear at this time why the KCWW mill produces more furans. By comparing all aspects of pulp production, bleaching, and treatment of raw water, and the water that is used in the bleach plant, insight should be gained to solve the problem. This is the purpose of the order mentioned previously. The Tables below summarize the methodologies used at both mills. The netting out of furan on a temporary basis is justified because it is unknown at this time how the problem will be solved. EPA approved the netting out of furans to give the permittee some relief while solving the problem.

Bleaching Condition Comparisons	Everett Softwood	Finch Pruyn
Digester kappa	18	25
D1		
Time	30	
Temperature	135	130
Consistency	8	10
Kappa factor	0.17	0.17
ClO2 Dosage	25	34
pH	2.5	2.5
Residual	50	
Brightness	70	
Kappa		
Eop		
Time	60	
Temperature	157	140
Consistency	9	
Oxygen psi	35	0
Caustic lb/ton		
Peroxide lb/ton	10	10
pH	10.8	11 Final; 11.9 beginning
Brightness		
Kappa	3.5	2.3
D2		
Time	180	420
Temperature	158	155
Consistency	8	
ClO2 lb/Ton	10	24
pH	5.2	5.6, no caustic added
Residual	0.03	Some
Brightness	86	
AOX lb/ton		
Bleach effluent Flow	1800	2000

*FACT SHEET FOR NPDES PERMIT WA-000062-1*

**Definitions:**

Kappa is a measure of lignin in the digested pulp.

D1 & D2 are first and second stages where chlorine dioxide is introduced.

Brightness measures the reflectant of light shown on the pulp relative to a standard.

Consistency is the ratio of amount of pulp to the amount water in the pulp slurry.

Eop is the oxygen and peroxide extraction stage.

The table below gives results of bleach plant effluent and process water furan tests for KCWW.

Date	Furan Levels in KCWW's Bleach Plant Effluent (2,3,7,8-TCDF concentrations in ppq)			Furan in Incoming Process Water, ppq (all samples run by ALTA Labs)
	ALTA Labs	Triangle Labs	Average	
5/15/2001	5.1		5.1	
6/28/2001	11.6		11.6	
7/18/2001	14.4		14.4	
8/1/2001	20.5		20.5	
9/5/2001	14.8		14.8	
9/12/2001	9.9		9.9	
9/19/2001	20.7	19.7	23.7	
9/26/2001		24.5	18.5	
10/3/2001		18.5	16.3	
10/10/2001		16.3	6.6	
10/17/2001		6.6	16.6	
10/24/2001		16.6	8.1	
10/31/2001		8.1	8.0	
12/1/2001	6.3	7.8	6.6	
12/1/2001	5.6		5.6	
12/27/2001	6.8		6.8	
1/16/2002	3.7		3.7	
2/20/2002	3.2		3.2	
3/13/2002	3.4		3.4	
4/25/2002	11.3		11.3	
5/22/2002	11.8		11.8	
7/24/2002	31.6		31.6	
8/22/2002	35.3		35.3	
9/5/2002	18.6		18.6	
10/1/2002	14.6		14.6	4.8
10/10/2002	20.4		20.4	4.2
10/15/2002	<0.7		0.4	3.8
10/22/2002				5.6
11/7/2002	5.9		5.9	
12/10/2002	4.7		4.7	
1/23/2003	12.4		12.4	
2/13/2003	6.4		6.4	0.3
3/20/2003	4.8		4.8	0.6
4/9/2003	3.1		3.1	2.2
5/14/03	23.0		23.0	0.4
6/5/2003	37.7		37.7	1.8
6/19/2003	13.5		13.5	7.4
7/16/2003	15.3		15.3	20.6
7/30/2003				60.6
8/1/2003	28.8	30.6	29.7	
8/5/2003	31.6		31.6	
8/7/2003	50.0		50.0	
8/8/2003	58.9		58.9	
8/22/2003	31.2	30.4	30.8	21.2
8/25/2003	53.3		53.3	9.7
8/26/2003	33.8		33.8	9.2
8/27/2003	27.3		27.3	5.3
8/28/2003	19.4		19.4	5.2
8/29/2003	36.1		36.1	4.2
9/3/2003	30.5		30.5	12.2
Average:			18.5	9.4

Chlorine to the Everett's industrial raw water was shut off the afternoon of 8/22/03 and turned back on the afternoon of 8/29/03.

Furan Concentration ppq				
Sample ID	Raw Water	Bleach Effluent	Date	Description
1	20.5	31.2	8/22/03	Pre-Trial
2	21.8	30.4	8/22/03	Pre-Trial Duplicate
3	9.73	53.3	8/25/03	Trial Day 3
4	9.25	33.8	8/26/03	Trial Day 4
5	5.29	27.3	8/27/03	Trial Day 5
6	5.25	19.4	8/28/03	Trial Day 6
7	4.24	36.1	8/29/03	Trial day 7
8	12.2	30.5	9/3/03	Post Trial 5 days

*We have contacted the Washington's Department of Health drinking water section about the furan in the intake water. The problem also affects the production of AOX. The AOX limitation is discussed in response to comment F.3.*

#### Comment D.3

It was also stated that the mill's discharge of furans violated water quality standards. That is a curious statement since no water quality standards for furans exist. Some commenters also argued that K-C should not be allowed to deduct or net-out furans found in the mill water intake when evaluating compliance with the furan limit of 10 ppq. K-C disagrees.

As Ecology is aware, the 10 ppq furan limit was set by EPA with no operating data from ammonium-based sulfite mills, and must be contrasted with the 31.9 ppq limit EPA set for Kraft mills from which operating data was available. A strong argument can be made in hindsight that EPA should have waited for operating data before setting this limit.

After installing the mandated ECF technology, K-C found that furans (2,3,7,8-TCDF) occasionally exceeded 10 ppq, and that this exceedance appeared to be seasonal. Upon further study, it was found that furans are entering the mill with the process water supplied by the City of Everett. Based on these findings, EPA agreed to allow netting out any incoming furan before evaluating compliance. The logic of EPA's position is that the mill has no ability to remove furans from incoming water. We believe EPA is entirely correct in recognizing that the mill should be held to a standard based on pollutants it generates, not what is just passing through the operation.

K-C is working with the City of Everett to identify the source of the furans in the mill's incoming water to see if this source can be reduced, and K-C is studying its bleaching process as well to determine if any furan generation is taking place. The latter step has been difficult since incoming furans have been tested as high as 60 ppq.

Response

*Noted*



Comment D.3

Even when the furan is netted out, they violate the water quality criteria for furan.

Response

*There are no water quality criteria for furans. KCWW is currently working on the furan problem. An order will be issued to ensure that this problem is solved.*

**E. Increase in BOD and TSS limits**

Comment E.1

For the BOD/TSS calculations did you define production as air dried tons of unbleached pulp entering the bleaching stage or did you define it as off-machine tons?

Response

*The production numbers that the limits were based on have been revisited, updated, and revised. The final NPDES limitations are based on the following updated off of the machine productions:*

	<i>Sulfite Pulp Production</i>	<i>Non-Integrated Pulp Production</i>
<i>Oct. 2002</i>	<i>484</i>	<i>162</i>
<i>Nov. 2002</i>	<i>465</i>	<i>181</i>
<i>Dec. 2002</i>	<i>489</i>	<i>192</i>
<i>Jan. 2003</i>	<i>462</i>	<i>165</i>
<i>Feb. 2003</i>	<i>452</i>	<i>204</i>
<i>March 2003</i>	<i>483</i>	<i>220</i>
<i>April 2003</i>	<i>491</i>	<i>188</i>
<i>May 2003</i>	<i>476</i>	<i>220</i>
<i>June 2003</i>	<i>444</i>	<i>223</i>
<i><u>July 2003</u></i>	<i><u>483</u></i>	<i><u>194</u></i>
<i>10 Mo. Average</i>	<i>473</i>	<i>195</i>

*The 1991 permit was based on 574 tons paper/day. The current production that this permit is based on is 668 tons paper/day. The difference is 94 tons paper/day. The conventional permit limits BOD and TSS are based on the 1998 federal effluent guidelines. The conventional pollutants limits are calculated using the production of 668 tons paper/day and the respective effluent guidelines. The limits are based on best practicable control technology currently available, BPT, (473 tons/day from 40 CFR 430.52 Subpart E for sulfite integrated paper production, 101 tons/day from 40 CFR 430.122 Subpart L for the nonintegrated paper production, and from 40 CFR 430.125 new source performance standards for the 94 tons increase of nonintegrated paper production). The limitations are*

<b>Parameter</b>	<b>Average Monthly</b>	<b>Maximum Daily</b>
Biochemical oxygen demand (BOD <sub>5</sub> )	16,600 Lbs./day	31,700 Lbs./day
Total suspended solids (TSS)	23,900 Lbs./day	44,800 Lbs./day

*The use of NSPS allowance for the new production is a Washington policy and is not required by federal rules.*

Comment E.2

Can you send me the raw production data you used to determine the production rates in the permit?

Response

*The production numbers used in setting the limits are included in response to comment E.1.*

Comment E.3

Several commenters opposed any increase in conventional pollutants, BOD and TSS.

Response

*The NPDES permits for pulp and paper mills are based on production and an allowance defined by 40 CFR Part 430 throughout the nation. In order to provide a basis and a level playing field for mills in Washington state competing both on a national and international field, we have chosen to use these regulations 40 CFR Part 430 for the pulp and paper mills in Washington. The limitations may from time to time increase or decrease depending on the products made and the amounts. The permits limitations were revised to reflect more current production data.*

**F. AOX**

Comment F.1

How much AOX data is there? Have you compiled it in a way that would be easy to send to me?

*There are several years of AOX data but less than three years with the current bleaching system. The data were compiled and were sent to the commenter.*

Comment F.2

Can you tell me whatever happened with the AOX requirements in the old K-C (Scott Paper) permit issued in 1991?

Response

*The company appealed and the Pollution Control Hearing Board ruled that the AOX condition was not applicable. The monitoring requirements were upheld. The permit was never modified to reflect the inapplicability of the conditions.*

Comment F.3

Several commenters stated that the permit should have an AOX limit. The mill stated that AOX should not be limited in the permit.

Response

*See response to comment B.1 for TCF bleaching AKART determination. Since ECF bleaching was determined to be AKART and the federal effluent guidelines do not specify a limit for AOX, we did not place an AOX limit in the draft permit. However, we did recognize that the KCWW, Inc. mill was the only mill in Washington without an AOX limit. We had planned on limiting AOX in the next permit after collecting data in the proposed permit. We became aware of AOX data from the Finch Pruyn sulfite mill in up state New York. We requested that the permittee obtain the data for AOX from this mill. After receiving the additional data and reviewing the public comments on the draft permit, we decided that there was enough data available if we included both the KCWW's and the Finch Pruyn's AOX data and that it would be appropriate to limit AOX in this permit.*

*A performance based AOX limit has been placed in the permit with compliance at the final effluent for the outfall 100 after it becomes operational. The limit for AOX was calculated on the 95 and 99 percentile values from the data supplied by KCWW and Finch Pruyn. The methodology used to limit AOX, that is, calculating the 95<sup>th</sup> percentile and 99<sup>th</sup> percentile, is the method recommended by the Ecology's Permit Writer Manual for parameters without effluent guidelines. The limits are 1,500 Lbs./day for the monthly average and 2,500 Lbs./day for the daily maximum.*

*AOX data do not include the 10.45 kg AOX/ADMT for KCWW data point.*

Finch Pruyn AOX data after 4-15-01

0.86	0.98	0.90	0.95
1.62	1.06	0.95	0.94
1.58	1.41	1.07	0.97
1.61	1.26	1.07	0.98
1.64	0.91	1.27	
1.59	1.07	1.24	
1.16	1.26	1.26	

KCWW AOX data after 4-15-01

0.90	1.20	0.50	0.70
0.80	1.20	0.50	0.90
0.70	0.80	0.70	1.00
0.60	1.10	0.70	1.20
0.70	1.20	0.90	0.90
0.90	1.10	0.70	0.90
0.70	0.90	0.70	1.00

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1.61	1.20	1.23	0.80	0.90	0.90	0.70
1.52	1.16	1.13	1.10	1.10	0.80	0.90
1.45	1.09	1.24	0.90	1.10	1.20	0.50
1.32	1.36	1.21	1.70	1.20	0.90	0.90
1.40	1.25	1.24	0.70	0.90	1.10	0.90
1.30	2.12	1.26	0.80	0.70	0.90	1.10
2.01	1.29	1.42	0.90	0.90	1.50	1.00
1.35	0.78	1.36	1.00	1.50	0.90	0.70
1.42	0.86	1.43	0.80	0.50	0.90	0.60
1.24	1.01	1.25	1.20	2.70	0.90	
1.23	1.01	1.16	0.50	0.80	0.90	
1.16	1.09	1.00	0.80	0.90	1.30	
1.10	1.03	0.98	1.20	0.70	1.60	
1.17	1.07	1.02	1.10	0.70	1.10	
1.14	1.13	1.07	0.80	0.70	1.10	
1.04	1.05	1.15	0.80	0.50	1.10	
1.05	1.06	1.02	0.80	0.60	1.10	
1.10	0.90	1.24	0.70	1.00	1.00	
1.10	2.62	1.10	0.60	0.70	1.10	
1.24	0.81	1.22	1.30	1.20	0.80	
1.12	0.89	1.14	0.90	0.90	0.70	

*Resolution of the furan problem should lower the mass of AOX discharged into the receiving waters. Weekly AOX monitoring is kept.*

Comment F.4

Ecology is required to apply AKART. Failure to set limits for AOX violates the requirements for AKART.

Response:

*Whether the permit has limits for AOX does not affect the AKART determination in the permit. Whether AOX is limited is another determination independent of the AKART determination. The AOX limits have been placed in the permit.*

**G. Permit Issuance**

Comment G.1

The Association of Western Pulp and Paper Workers represent the hourly employees at Kimberly-Clark's Everett facility. We encourage the Department of Ecology to renew the mill's NPDES permit. In recent years Kimberly-Clark has committed capital resources for process improvements, as acknowledged in the fact sheet: "In 2000, the mill changed from chlorine gas bleaching sequence to chlorine dioxide sequence as required by the EPA Cluster rule...The mill upgraded its wastewater treatment plant in 2002 when a new aeration diffuser and a biological selector were installed." The AWPPW is confident of Kimberly-Clark's continued commitment.

Kimberly-Clark has partnered with neighboring communities to construct a new deep water outfall that will "combine the mill's flow from three outfalls and will eventually include municipal effluents from the cities of Everett and Marysville." This corporate and community coalition will enhance the environment as aging outfalls are replaced by a new-single-outfall that minimizes pollutants, assists salmon recovery, enables tidal restoration, and protects marine life and human health. Permit protections will be monitored by frequent tests in accordance with ecology guidelines and scientific standards.

The plant has been an important presence in the community for decades. The pulp mill began operations in the 1930s, the paper mill was constructed during the 1950s, and the site has been owned by Kimberly-Clark since 1995. The mill has employed four generations of workers, providing family wage jobs and enhancing the local economy. Although the mill's longevity does create challenges, the union is confident the mill can comply with permit guidelines. Our jobs depend upon natural resources, and we share a common commitment with community neighbors for environmental standards and economic security.

Response

*Noted. The permit is being renewed.*

Comment G.2

Kimberly-Clark recommends that the draft permit be adopted in its present form. Ecology has fairly delineated permit terms in accordance with applicable laws, regulations, and guidelines. Given that the current permit expired in 1996, we believe it is in the public interest to adopt the draft permit promptly and not further delay the renewal process.

Response

*Noted.*

Comment G.3

Commenter hopes the permit is only for five years.

Response

*We are committed to issuing the next permit just after the current permit expires.*

## **H. General comments**

Comment H.1

Commenter wanted Ecology to raise the values of penalty.

Response

*The legislative has determined that the maximum amount any penalty can be is \$10,000 per day per violation. The \$20,000 penalty issued in November 2000 was for a violation of the TSS limit for two days. The penalty was set at the maximum value.*

Comment H.2

Commenter indicated that Kimberly Clark has been discharging without a permit since 1990.

Response

*Their permit expired in 1996. The NPDES permit regulations states that if a permittee submits a timely permit application, the expired permit remains in effect until a new permit is issued. The permittee satisfied the application requirements.*

Comment H.3

Commenter indicated that the Puget Sound is polluted and must be cleaned up.

Response

*Noted*

Comment H.4

Kimberly Clark has worked to comply with the guidelines and regulations and it is time to stop putting the ecology above people. To enforce ridiculously strict restrictions would greatly jeopardize the 896 person work force that helps support the economy in an area where the unemployment is the highest in the nation. The ecologists should go find a tree to hug in another state.

Response:

*KCWW has to comply with the regulations as does every other pulp mill and every other discharger. EPA created specific guidelines for the KCWW type of mill. Ecology expects that compliance with the permit will be protective of people, jobs, and the environment.*

**I. Letters and data**

EPA letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C. 20460

June 4, 2003

Mr. Don Nelson  
Department of Ecology  
State of Washington  
300 Desmond Dr.  
P.O. Box 47600  
Olympia, WA 98504-7600

Dear Mr. Nelson:

The purpose of this correspondence is to present the opinion of EPA Headquarters regarding the usage of a "net-zero" provision in the effluent discharge permit being developed for 2,3,7,8-tetrachlorodibenzofuran (TCDF) at the Kimberly-Clark pulp mill in Everett, Washington (K-C Everett). The K-C Everett mill uses ammonium-based sulfate pulping and is, as a result, governed by Subpart E of 40 CFR Part 430. According to 40 CFR 430.54(a)(2)(i), discharges of TCDF from ammonium-sulfite mills are limited to less than the minimum level. For TCDF, this minimum level is 10 pg/L (40 CFR 430.01 (i)).

According to data provided by K-C Everett, TCDF was detected in 10 of 14 monthly bleach plant effluent samples taken between May 2001 and August 2002. During the same sampling regime, no 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) was detected. In the event that the TCDF was detected due to poor management of the bleaching sequence, one might expect that TCDD would also be found. However, this did not happen. Moreover, K-C Everett converted to complete chlorine dioxide substitution in early 2001, significantly reducing the likelihood that free chlorine would be present in the bleaching sequence and making it an unlikely pathway for TCDF generation.

In September 2002, KC-Everett sampled several streams to isolate possible sources of TCDF. Surprisingly, TCDF was detected at 14.4 pg/L in the raw source water. This water is provided by the City of Everett and is obtained from the Sultan Basin in the foothills of the Cascades. Subsequent sampling of the source water has shown intermittent, perhaps seasonal, presence of TCDF. In light of this, EPA believes it may be appropriate to account for the presence of TCDF in the mill's source water by revising the mill's NPDES permit to provide a TCDF effluent limitation to reflect incoming TCDF concentrations, but only to the extent that TCDF is present in the source water.

Any written correspondence to me should be sent to the following address:



Mr. M. Ahmar Siddiqui  
US EPA, Mail Code 4303 T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

If you have any further questions, please feel free to call me at (202) 566-1044.

Sincerely yours,

M. Ahmar Siddiqui  
Chemical Engineer, Pulp and Paper  
Chemical Engineering Branch

Engineering

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Date	Furan Levels in Bleach Plant Effluent (2,3,7,8-TCDF concentrations in ppq)				Furan in Incoming Process Water, ppq (all samples run by ALTA Labs)
	ALTA Labs		Triangle Labs	Average	
5/15/2001	5.1			5.1	
6/28/2001	11.6			11.6	
7/18/2001	14.4			14.4	
8/1/2001	20.5			20.5	
9/5/2001	14.8			14.8	
9/12/2001	9.9			9.9	
9/19/2001	20.7	19.7	24.5	30.0	23.7
9/26/2001			18.5		18.5
10/3/2001			16.3		16.3
10/10/2001			6.6		6.6
10/17/2001			16.6		16.6
10/24/2001			8.1		8.1
10/31/2001	6.3	7.8	8.0	4.4	6.6
12/1/2001	5.6				5.6
12/27/2001	6.8				6.8
1/16/2002	3.7				3.7
2/20/2002	3.2				3.2
3/13/2002	3.4				3.4
4/25/2002	11.3				11.3
5/22/2002	11.8				11.8
7/24/2002	31.6				31.6
8/22/2002	35.3				35.3
9/5/2002	18.6				18.6
10/1/2002	14.6				14.6
10/10/2002	20.4				20.4
10/15/2002	<0.7				0.4
10/22/2002					
11/7/2002	5.9				5.9
12/10/2002	4.7				4.7
1/23/2003	12.4				12.4
2/13/2003	6.4				6.4
3/20/2003	4.8				4.8
4/9/2003	3.1				3.1
5/14/03	23.0				23.0
6/5/2003	37.7				37.7
6/19/2003	13.5				13.5
7/16/2003	15.3				15.3
7/30/2003					
8/1/2003	28.8	30.6			29.7
8/5/2003	31.6				31.6
8/7/2003	50.0				50.0
8/8/2003	58.9				58.9
8/22/2003	31.2	30.4			30.8
8/25/2003	53.3				53.3
8/26/2003	33.8				33.8
8/27/2003	27.3				27.3
8/28/2003	19.4				19.4
8/29/2003	36.1				36.1
9/3/2003	30.5				30.5
Average:					18.5
Note: the 8/22/03 process water samples were also run as duplicates: results were 20.5 and 21.8 ppq.					

Below are the results from the non-chlorination trial run in August.

Chlorine to the industrial raw water was shut off the afternoon of 8/22/03 and turned back on the afternoon of 8/29/03.

Furan Concentration ppq				
Sample ID	Raw Water	Bleach Effluent	Date	Description
1	20.5	31.2	8/22/03	Pre-Trial
2	21.8	30.4	8/22/03	Pre-Trial Duplicate
3	9.73	53.3	8/25/03	Trial Day 3
4	9.25	33.8	8/26/03	Trial Day 4
5	5.29	27.3	8/27/03	Trial Day 5
6	5.25	19.4	8/28/03	Trial Day 6
7	4.24	36.1	8/29/03	Trial day 7
8	12.2	30.5	9/3/03	Post Trial 5 days